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✓ (12) **UK Patent Application** (19) **GB** (11) **2 260 494 A**  
(43) Date of A publication 21.04.1993

(21) Application No 9221211.7

(22) Date of filing 08.10.1992

(30) Priority data

(31) 355091

(32) 16.10.1991

(33) IE

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(51) INT CL<sup>5</sup>

**A61L 9/01**

(52) UK CL (Edition L)

**A5E ET E303 E311 E317 E326**

**U1S S1340**

(56) Documents cited

**GB 1544221 A**

**US 4891389 A**

**US 4117110 A**

(58) Field of search

**UK CL (Edition K) A5E ECE ECG ES ET**

**INT CL<sup>5</sup> A61L**

**Online database: WPI**

(54) **A gel type fragrant composition**

(57) A gel type fragrant composition for use as an air freshener may be provided as a block in a polystyrene tray which is suitable for placing in a fragrance dispenser. The fragrant composition comprises an oil based synthetic fragrant compound, a binding agent such as sodium stearate, a solubilising agent such as hydrogenated castor oil and a volatiles release controlling agent such as isopropyl myristate. The fragrant composition, when provided in blocks of 4 grammes, has an effective life of at least 35 days.

The present invention relates to a gel type fragrant composition, and to a method for preparing the gel type fragrant composition.

Fragrant compositions are commonly used as air  
5 fresheners, and typically are provided in solid block or gel form. Such compositions include a volatile fragrant compound which releases volatiles which give the fragrance. Where provided in a gel form, the gel is normally supplied in a covered tray, the cover of  
10 which is removed to permit release of the volatiles. The block of fragrant composition or tray of fragrant gel composition may be left in a room where the volatiles are released into the room, thereby providing a pleasant fragrance in the room.

15 Alternatively, the block or tray of gel may be placed in an air stream whereby air is continuously or intermittently passed over a surface or surfaces of the block or gel to rapidly diffuse the volatiles and in turn the fragrance throughout the room. Typically  
20 a block or tray of gel may be placed in a fragrance dispenser, which would normally comprise a housing. A fan mounted in the housing passes an air stream across a surface or surfaces of the block or gel which entrains the volatiles and in turn diffuses the  
25 volatiles through an outlet in the housing into the room or the like, typically, a bathroom or toilet.

In general, as well as the volatile fragrant compound, fragrant compositions comprise a fragrant solubilising agent and a binding agent.

A major problem of most known fragrant compositions is  
5 that the volatiles of the fragrant compound are released at a non-uniform rate. In general, the volatiles are rapidly released in the initial stages of exposure of the composition, while in due course the rate of release of the volatiles drops rapidly,  
10 and after a relatively short period of time the rate of release of volatiles from known compositions is, in general, insufficient to be effective. In general, known fragrant compositions seldom have an effective life of more than five days after initial exposure.  
15 This causes considerable problems, in that, where fragrant compositions are used in institutions, such as, for example, toilets of hotels, bars, offices and the like, the fragrant composition must be replaced on a relatively regular basis. In cases where the  
20 fragrant composition is placed in a dispenser, the cost of servicing such dispensers every five days or less to replace the fragrant composition is relatively time consuming, and in turn costly. In many cases, a service person may have to travel considerable  
25 distances from location to location where the fragrance dispensers are provided.

There is therefore a need for a fragrant composition which overcomes these problems. There is also a need for a method for preparing such a fragrant composition.

- 5     The present invention is directed towards providing a gel type fragrant composition and a method for preparing the gel type fragrant composition.

According to the invention there is provided a gel type fragrant composition comprising an oil based  
10   fragrant compound, a binding agent, a solubilising agent, and a volatiles release controlling agent for controlling the rate of release of the volatiles of the fragrant compound from the composition.

Preferably, the volatiles release controlling agent is  
15   isopropyl myristate. Advantageously, the volatiles release controlling agent constitutes in the range of 25% to 50% by weight of the composition, and preferably, the volatiles release controlling agent constitutes in the range of 35% to 45% by weight of  
20   the composition. In a preferred embodiment of the invention, the volatiles release controlling agent constitutes approximately 40% by weight of the composition.

In another embodiment of the invention, the oil based

fragrant compound constitutes in the range of 30% to 50% by weight of the composition, advantageously, the oil based fragrant compound constitutes in the range of 30% to 40% by weight of the composition, and preferably, the oil based fragrant compound constitutes approximately 35% by weight of the composition. Preferably, the oil based fragrant compound is an oil based synthetic fragrant compound. In another embodiment of the invention, the binding agent is sodium stearate, advantageously, the binding agent constitutes in the range of 6% to 10% by weight of the composition, and preferably, the binding agent constitutes approximately 8% by weight of the composition.

15 In another embodiment of the invention, the solubilising agent is hydrogenated castor oil, and advantageously, the solubilising agent is PG-40 hydrogenated castor oil, and preferably, the solubilising agent constitutes in the range of 5% to 20 15% by weight of the composition, and in a preferred embodiment of the invention, the solubilising agent constitutes approximately 10% by weight of the composition.

In a further embodiment of the invention, the fragrant composition is provided in a tray, the tray containing 25 in the range of 2 grammes to 10 grammes of the

fragrant composition, preferably, the tray contains in the range of 2 grammes to 6 grammes of the fragrant composition, and advantageously, the tray contains 6 grammes approximately of the fragrant composition.

- 5 Preferably, the tray is of polystyrene material, and is preferably provided with a releasable cover.
- Advantageously, the tray is of shape and dimensions to provide an exposed surface of the fragrant composition of area in the range of 3,000 sq mm to 9,000 sq mm,
- 10 and preferably, the tray is of shape and dimensions to provide an exposed surface of the fragrant composition of area in the range of 4,000 sq mm to 7,000 sq mm.
- Advantageously, each tray is of shape and dimensions to provide an exposed surface of the fragrant
- 15 composition of area of approximately 4,875 sq mm.

In other examples of the invention, the oil based fragrant compound may be selected from any one or more of the following constituents:

- an oil based synthetic fragrant compound
- 20 manufactured by Ungerer Limited - type A 136464,
- an oil based synthetic fragrant compound
- manufactured by Ungerer Limited - type A 1364654,
- an oil based synthetic fragrant compound
- manufactured by Fragrance Oils (International)
- 25 Limited - type 62138,
- an oil based synthetic fragrant compound
- manufactured by Fragrance Oils (International)



Limited - type 24595, and  
an oil based synthetic fragrant compound  
manufactured by Fragrance Oils (International)  
Limited - type 54548.

5 Further, the invention provides a method for preparing  
the fragrant composition according to the invention,  
the method comprising the steps of mixing the  
solubilising agent, the binding agent, and the  
volatiles release controlling agent together and  
10 raising the temperature of the mixture to a  
temperature in the range of 65°C to 85°C, adding a  
first portion of the oil based fragrant compound to  
the mixture at the raised temperature, allowing the  
mixture to commence to cool, adding a second portion  
15 of the oil based fragrant compound to the mixture as  
the mixture is commencing to cool, and agitating the  
mixture while the second portion of the fragrant  
compound is being added.

Advantageously, the mixture is continuously agitated  
20 for a further period of at least thirty seconds after  
the second portion of the fragrant compound has been  
added, preferably, the period during which the mixture  
is agitated after the second portion of the fragrant  
compound is added is approximately sixty to ninety  
25 seconds.

In one embodiment of the invention, the first portion of the oil based fragrant compound added to the mixture constitutes in the range of 25% to 75% by weight of the fragrant compound, and preferably, the first portion of the oil based fragrant compound added to the mixture constitutes in the range of 40% to 60% by weight of the fragrant compound, advantageously, the first portion of the fragrant compound added to the mixture constitutes approximately 50% by weight of the fragrant compound.

In another embodiment of the invention, the temperature of the mixture of solubilising agent, binding agent and volatiles release controlling agent is heated to a temperature in the range of 70°C to 80°C, advantageously, the temperature of the mixture of solubilising agent, binding agent and volatiles release controlling agent is heated to a temperature of approximately 75°C.

In a further embodiment of the invention, water is added to the mixture prior to the temperature of the mixture being raised, the water constituting in the range of 5% to 10% by weight of the fragrant composition.

Preferably, the oil based fragrant compound is at room temperature prior to being added to the mixture.

Advantageously, the fragrant composition is poured into a plurality of trays and allowed to cool in the trays, and preferably, the fragrant composition is poured into the trays immediately after agitation of the mixture has ceased.

The invention will be more fully understood from the following description of some non-limiting examples.

Example 1

A gel type fragrant composition, which in this case is provided as a solid gel in trays is prepared from the following ingredients in the percentages by weight of the fragrant composition set out below:

	water	7%
	sodium stearate	8%
15	PEG-40 hydrogenated castor oil	10%
	isopropyl myrestate	40%
	oil based synthetic fragrant compound	35%

In this example, the oil based synthetic fragrant compound is a fragrant compound type A 136468 supplied in liquid form by Ungerer Limited of Great Britain. The fragrant composition is suitable for use as an air freshener and releases a flat pine type fragrance.

The PEG-40 hydrogenated castor oil is in paste form and acts as a solubilising agent. In this embodiment

of the invention the PEG-40 hydrogenated castor oil is sold by BASF Chemicals Limited of Great Britain under the trade name Cremophor RH40. The sodium stearate acts as a binding agent and in this embodiment of the invention is supplied in powder form by Durham Limited of Great Britain. The isopropyl myristate acts as a volatiles release controlling agent and in this embodiment of the invention is supplied in liquid form by Fina Chemicals Limited of Belgium.

10 Eight kilos of the fragrant composition is prepared. The method for preparing the fragrant composition is as follows. The water, sodium stearate, PEG-40 hydrogenated castor oil and isopropyl myristate are mixed together in a suitable container, such as, for  
15 example, a stainless steel vat. The mixture is heated over a suitable heat source to a temperature of approximately 70°C and is agitated by continuous brisk stirring during heating. On the temperature of the mixture reaching approximately 70°C, a first portion,  
20 in this case 50% by weight of the oil based fragrant compound at room temperature is stirred into the heated mixture. The heat source is then removed from the container or vice versa, and cooling of the mixture commences. On removal of the heat source and  
25 just as the mixture commences to cool, a second portion, namely, the remaining 50% by weight of the oil based fragrant compound is stirred into the

mixture. The entire mixture is continuously stirred for a period of approximately 60 seconds after all the fragrant compound has been stirred into the mixture. The mixture is then poured into suitable trays and  
5 allowed to cool in the trays to form a gel block. In this example, 4 grammes of the fragrant composition are poured into each tray. On the fragrant composition cooling in the trays, the trays are then covered by a releasable cover to retain the volatiles  
10 within the gel. The trays containing the fragrant gel are now ready for use, and on removal of the cover emit the volatiles of the fragrant compound. The trays may be placed in a room or in a suitable fragrance dispenser.

15 In this example, the trays are of polystyrene material which is impermeable to the volatiles of the fragrant composition, and the releasable cover is also of polystyrene. The trays are of size 75 mm by 65 mm by 15 mm deep. The area of the exposed surface of the  
20 fragrant gel block from which volatiles are released is 4,875 sq mm.

#### Example 2

In this example, a batch of eight kilos of a gel type fragrant composition is prepared. The ingredients and  
25 their proportions are identical to those of Example 1 with the exception that the oil based fragrant

compound is a fragrant compound type 136465 supplied in liquid form by Ungerer Limited. The fragrant composition releases a herbal type fragrance.

The method for preparing the fragrant composition is identical to that of Example 1 and the mixture is poured into trays similar to those described in Example 1 and allowed to cool to form the gel type fragrant composition.

#### Example 3

In this example, a batch of eight kilos of a gel type fragrant composition is prepared. The ingredients and their proportions are identical to those of Example 1 with the exception that the oil based fragrant compound is a fragrant compound type 62138 supplied in liquid form by Fragrance Oils (International) Limited of Great Britain. The fragrant composition releases a floral type fragrance.

The method for preparing the fragrant composition is identical to that of Example 1 and the mixture is poured into trays similar to those described in Example 1 and allowed to cool to form the fragrant composition.

#### Example 4

In this example, a batch of eight kilos of a gel type

fragrant composition is prepared. The ingredients and their proportions are identical to those of Example 1 with the exception that the fragrant compound is a fragrant compound type 24595 supplied in liquid form  
5 by Fragrance Oils (International) Limited of Great Britain. The fragrant composition releases a citrus type fragrance.

The method for preparing the fragrant composition is identical to that of Example 1 and the mixture is  
10 poured into trays similar to those described in Example 1 and allowed to cool to form the fragrant composition.

#### Example 5

In this example, a batch of eight kilos of a gel type  
15 fragrant composition is prepared. The ingredients and their proportions are identical to those of Example 1 with the exception that the fragrant compound is a fragrant compound type 54548 supplied by Fragrance Oils (International) Limited of Great Britain. The  
20 fragrant composition releases a herbal type fragrance.

The method for preparing the fragrant composition is identical to that of Example 1 and the mixture is poured into trays similar to those described in  
25 Example 1 and allowed to cool to form the fragrant composition.

In tests, it has been surprisingly found that the effective life of the gel type fragrant composition of the examples is in all cases greater than 35 days. In the case of the fragrant composition of Example 1, the life of the fragrant composition is 39 days. Each test was carried out in a room of dimensions 12 metres length by 10 metres width by 8 metres height. The number of air changes in the room throughout the test was approximately 6 per hour. A tray containing 4 grammes of the fragrant gel with an exposed surface area of 4,875 sq mm was placed in a fragrance dispenser mounted on a wall of the room. The fragrance dispenser was of the type comprising a housing having a fan mounted therein which passed an air stream over the surface of the fragrant composition and subsequently diffused the air with the volatiles of the fragrant compound entrained therein into the room. The fan continuously delivered an air stream which was incident on the surface of the gel at an angle of approximately  $90^\circ$  at a flow rate of thirty cubic metres of air per hour.

During the entire 39 day life of the fragrant composition of Example 1, the rate of diffusion of the volatiles into the room was adequate to give a pleasant fragrance of a desirable level throughout the room.



The level of fragrance in the room was found to be substantially constant during the 39 day life of the fragrant composition. For the first 3 days of the test it was found that a relatively strong fragrance  
5 was provided in the room. However, while the fragrance was relatively strong, it was not objectionable. After the first 3 days of the test the level of fragrance in the room was substantially constant for the next 36 days, and was found to be at  
10 an acceptable level. After the 39th day of the test, the level of fragrance was found to have dropped below an acceptable level.

Why these new and surprising results have been achieved is not fully understood. However, it is  
15 believed that by providing a volatiles release controlling agent, the rate of release of volatile from the fragrant composition is regulated to be substantially constant over most of the effective life of the fragrant composition. In other words, the  
20 volatiles release controlling agent suppresses the rate of release of volatiles during the initial few days, and maintains the rate of release substantially constant over the effective life of the fragrant composition.

25 While in all the examples of the invention, the volatiles release controlling agent has been described

as being isopropyl myristate, it is believed that reasonable results would be achieved with other constituents which possessed the property of acting as a volatile release controlling agent. It is believed  
5 that the following constituents would be suitable as volatiles release controlling agents:

iso propyl palmitate,  
di propylene glycol,  
di methyl phthalate,  
10 di ethyl phthalate.

While this list is given as suggested constituents which would have properties suitable for acting as volatiles release controlling agents, it is not intended to be an exhaustive list.

15 While a specific compound has been described for use as a binding agent, other suitable binding agents could be used. Similarly, other suitable solubilising agents may be used. Needless to say, other oil based  
20 based fragrant compounds could be used. Where other oil based fragrant compounds and/or other volatile release controlling agents are used, the proportions by weight of the volatile release controlling agent and the fragrant compound in the gel type fragrant composition may be varied.

25 Needless to say, the proportions of the other

constituents of the gel type fragrant composition may also be varied.

While in the examples, the fragrant composition has been described as being provided in trays, it is envisaged in many cases that the fragrant composition would be provided in solid blocks without a tray. For example, in such cases, it is envisaged that the fragrant composition, after being mixed as described in the examples, would be poured into a mould to form solid gel blocks. On setting, the gel blocks would then be removed from the mould and packaged. The blocks may be packaged in any suitable packaging material, such as, for example, wrapping, boxes or the like. However, it is recommended that the packaging material used should be impermeable to the volatiles of the fragrant composition. The gel block packaged in this way would then be partly or fully removed from the packaging for subsequent use.

CLAIMS

1. A gel type fragrant composition comprising an oil based fragrant compound, a binding agent, a solubilising agent, and a volatiles release  
5 controlling agent for controlling the rate of release of the volatiles of the fragrant compound from the composition.
2. A gel type fragrant composition as claimed in Claim 1 in which the volatiles release controlling  
10 agent is isopropyl myristate.
3. A gel type fragrant composition as claimed in Claim 1 or 2 in which the volatiles release controlling agent constitutes in the range of 25% to 50% by weight of the composition.
- 15 4. A gel type fragrant composition as claimed in Claim 3 in which the volatiles release controlling agent constitutes in the range of 35% to 45% by weight of the composition.
- 20 5. A gel type fragrant composition as claimed in Claim 4 in which the volatiles release controlling agent constitutes approximately 40% by weight of the composition.
6. A gel type fragrant composition as claimed in any

preceding claim in which the oil based fragrant compound constitutes in the range of 30% to 50% by weight of the composition.

7. A gel type fragrant composition as claimed in  
5 Claim 6 in which the oil based fragrant compound constitutes in the range of 30% to 40% by weight of the composition.

8. A gel type fragrant composition as claimed in  
Claim 7 in which the oil based fragrant compound  
10 constitutes approximately 35% by weight of the composition.

9. A gel type fragrant composition as claimed in any preceding claim in which the oil based fragrant compound is an oil based synthetic fragrant compound.

15 10. A gel type fragrant composition as claimed in any preceding claim in which the binding agent is sodium stearate.

11. A gel type fragrant composition as claimed in any preceding claim in which the binding agent constitutes  
20 in the range of 6% to 10% by weight of the composition.

12. A gel type fragrant composition as claimed in

Claim 11 in which the binding agent constitutes approximately 8% by weight of the composition.

13. A gel type fragrant composition as claimed in any preceding claim in which the solubilising agent is  
5 hydrogenated castor oil.

14. A gel type fragrant composition as claimed in Claim 13 in which the solubilising agent is PG-40 hydrogenated castor oil.

15. A gel type fragrant composition as claimed in any  
10 preceding claim in which the solubilising agent constitutes in the range of 5% to 15% by weight of the composition.

16. A gel type fragrant composition as claimed in Claim 15 in which the solubilising agent constitutes  
15 approximately 10% by weight of the composition.

17. A gel type fragrant composition as claimed in any preceding claim in which the composition is in the form of a solid gel.

20 18. A gel type fragrant composition as claimed in any preceding claim in which the fragrant composition is provided in a tray, the tray containing in the range of 2 grammes to 10 grammes of the fragrant composition.

19. A gel type fragrant composition as claimed in Claim 18 in which the tray contains in the range of 2 grammes to 6 grammes of the fragrant composition.

20. A gel type fragrant composition as claimed in  
5 Claim 19 in which the tray contains 6 grammes approximately of the fragrant composition.

21. A gel type fragrant composition as claimed in any of Claims 18 to 20 in which the tray is of polystyrene material.

10 22. A gel type fragrant composition as claimed in any of Claims 18 to 21 in which the tray is provided with a releasable cover.

23. A gel type fragrant composition as claimed in any of Claims 18 to 22 in which the tray is of shape and  
15 dimensions to provide an exposed surface of the fragrant composition of area in the range of 3,000 sq mm to 9,000 sq mm.

24. A gel type fragrant composition as claimed in Claim 23 in which the tray is of shape and dimensions  
20 to provide an exposed surface of the fragrant composition of area in the range of 4,000 sq mm to 7,000 sq mm.

25. A gel type fragrant composition as claimed in Claim 24 in which each tray is of shape and dimensions to provide an exposed surface of the fragrant composition of area of approximately 4,875 sq mm.

- 5 26. A gel type fragrant composition as claimed in any preceding claim in which the oil based fragrant compound is selected from any one or more of the following constituents:

an oil based synthetic fragrant compound  
10 manufactured by Ungerer Limited - type A 136464,  
an oil based synthetic fragrant compound  
manufactured by Ungerer Limited - type A 1364654,  
an oil based synthetic fragrant compound  
manufactured by Fragrance Oils (International)  
15 Limited - type 62138,  
an oil based synthetic fragrant compound  
manufactured by Fragrance Oils (International)  
Limited - type 24595, and  
an oil based synthetic fragrant compound  
20 manufactured by Fragrance Oils (International)  
Limited - type 54548.

27. A gel type fragrant composition substantially as described herein with reference to the accompanying examples.

- 25 28. A method for preparing the fragrant composition



of any preceding claim, the method comprising the steps of:

mixing the solubilising agent, the binding agent, and the volatiles release controlling agent together  
5 and raising the temperature of the mixture to a temperature in the range of 65°C to 85°C,

adding a first portion of the oil based fragrant compound to the mixture at the raised temperature,  
allowing the mixture to commence to cool,  
10 adding a second portion of the oil based fragrant compound to the mixture as the mixture is commencing to cool, and

agitating the mixture while the second portion of the fragrant compound is being added.

15 29. A method as claimed in Claim 28 in which the mixture is continuously agitated for a further period of at least thirty seconds after the second portion of the fragrant compound has been added.

30. A method as claimed in Claim 29 in which the  
20 period during which the mixture is agitated after the second portion of the fragrant compound is added is approximately sixty to ninety seconds.

31. A method as claimed in any of Claims 28 to 30 in which the first portion of the oil based fragrant  
25 compound added to the mixture constitutes in the range

of 25% to 75% by weight of the fragrant compound.

32. A method as claimed in Claim 31 in which the first portion of the oil based fragrant compound added to the mixture constitutes in the range of 40% to 60%  
5 by weight of the fragrant compound.

33. A method as claimed in Claim 32 in which the first portion of the fragrant compound added to the mixture constitutes approximately 50% by weight of the fragrant compound.

10 34. A method as claimed in any of Claims 28 to 33 in which the temperature of the mixture of solubilising agent, binding agent and volatiles release controlling agent is heated to a temperature in the range of 70°C to 80°C.

15 35. A method as claimed in Claim 34 in which the temperature of the mixture of solubilising agent, binding agent and volatiles release controlling agent is heated to a temperature of approximately 75°C.

20 36. A method as claimed in any of Claims 28 to 35 in which water is added to the mixture prior to the temperature of the mixture being raised, the water constituting in the range of 5% to 10% by weight of the fragrant composition.

37. A method as claimed in Claims 28 to 36 in which the oil based fragrant compound is at room temperature prior to being added to the mixture.

38. A method as claimed in any of Claims 28 to 37 in which the fragrant composition is poured into a plurality of trays and allowed to cool in the trays.

39. A method as claimed in Claim 38 in which the fragrant composition is poured into the trays immediately after agitation of the mixture has ceased.

10

40. A method for preparing a gel type fragrant composition, the method being substantially as described herein with reference to and as illustrated in the accompanying examples.

Patents Act 1977  
Examiner's report to the Comptroller under  
Section 17 (The Search Report)

Application number

GB 9221211.7

Relevant Technical fields

(i) UK Cl (Edition K ) A5E ECE, ECG, ES, ET

(ii) Int Cl (Edition 5 ) A61L

Search Examiner

P N DAVEY

Databases (see over)

(i) UK Patent Office

(ii) ONLINE DATABASES: WPI

Date of Search

2.11.92

Documents considered relevant following a search in respect of claims 1-40

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X, Y	GB 1544221 (NAARDEN) see eg page 1 lines 72-82 and Example	1, 10 at least
X, Y	US 4891389 (DOW CORNING) see eg column 4, lines 26-60	1 at least
X, Y	US 4117110 (GLOBEL WERK) see eg column 1, line 60 - column 2, line 28	1, 10 at least

SF2(p)

DT - doc99\fil000368

Category	Identity of document and relevant passages	Relevant to claim(s).

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